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Faculty of Dentistry

Examinations

1959

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Anthropology 1e.

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

Annual Examinations, 1959

ANTHROPOLOGY 1e

Examiner: W. J. Mayer-Oakes

(No books or notes allowed)

ANSWER FOUR QUESTIONS

1. Present a detailed defence or rejection of the following statement:

> Old World archaeologists have worked out a reasonably full story of man's cultural development from early Pleistocene times to the advent of the urban revolution.

2. List, describe and discuss the five major sub-fields of anthropology in terms of:

A. Subject matter

B. Methods

C. Resulting knowledge

3. Discuss and give examples of the nature of the evidence for biological evolution of homo sapiens from a lower primate form.

OR

4. Compare and contrast the Australopithecines with modern man.

5. Define and illustrate three of the following concepts: status, family, technology, role, group.

OR

6. Describe one of the non-western cultures presented in your readings in terms of both cultural universals and community pattern.

Art & Archaeology

UNIVERSITY OF TORONTO
Faculty of Arts

ANNUAL EXAMINATIONS, 1959

First Year

ART AND ARCHAEOLOGY 1a, 1b
Ancient and Medieval Art

Examiners - F. E. WINTER
W. H. VITZTHUM

FIVE questions constitute a full paper. Candidates must answer at least TWO questions from each part. 1a students must answer QUESTION 9 as one of their five.

Part A
Write in a separate book

1. Describe, with a plan, the Great Gateway of the Athenian Acropolis.

OR

Discuss the Temple of Athena at Tegea and the Temple of Athena at Priene as examples of later Doric and Ionic temple-architecture. What are the most significant differences between the Temple at Tegea and the Temple of Poseidon at Paestum?

2. Discuss the architectural development of Greek and Roman theatre buildings.

3. (a) Discuss briefly one of the following types of Roman building: Basilicas; public baths; amphitheatres.

(b) Write on two of the following: The Stoa of Attalos in Athens; the Assembly Hall at Priene; the tholos at Delphi; the temple of Olympian Zeus in Athens.

4. Write rather fully on the importance of three of the following: the East Pediment of the Parthenon; the Bronze Zeus from Artemision; the Marathon Boy; the Pergamon Altar; the Gaul and his Wife in the Terme Museum in Rome.

Part B

Write in a separate book

5. Describe the plan and elevation of Old St. Peter's in Rome.

6. Ravenna has monuments of three distinct periods. Describe one example of each.

7. What does the church at Aix-la-Chapelle (Aachen) have in common with S. Vitale in Ravenna? Where does it differ?

8. Trace the history of church facades from Early Christian to and including Gothic times.

9. Compare Carolingian and Ottonian manuscript illuminations.

OR

Discuss the architectural history of the cathedral of Chartres.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1959

Preprofessional Year

CHEMISTRY 108
GENERAL CHEMISTRY

Examiner - J. A. PAGE

Logarithm cards to be supplied; slide rules permitted.
The examination is 150 minutes long, there are 150 marks.

Marks

25 1. (a) Discuss the important aspects of covalent and ionic bonding, and compare the properties of compounds in which the bonding is predominantly covalent with the properties of compounds in which the bonding is predominantly ionic.

(b) In terms of energy levels (1, 2, 3. . .) and sub-levels (s, p, d, f. . .) show the distribution of the extranuclear electrons in each of the atoms:

$_{11}Na$, $_{16}S$, $_{35}Br$.

(c) Write electron dot formulae to show the number and distribution of the bonding electrons and the nature of the bonding in each of: elemental bromine, hydrogen sulphide, sodium sulphate.

15 2. (a) What is meant by the term "chemical atomic weight" of an element?

(b) Explain why elements appear in the periodic table in order of atomic number and not always in order of atomic weight.

20 3. (a) Clearly distinguish between the "Equilibrium Constant" and the "Rate Constant" for a reaction.

Marks

(b) Briefly discuss the effect of (i) a catalyst and (ii) a change of temperature on the numerical values of both the equilibrium constant and the rate constant for a particular reaction.

20 4. Draw graphs to quantitatively illustrate each of the following. In each case carefully label the axes of the graph as to units and clearly mark any significant numerical values on the axes.

(a) The distribution of molecular speeds in hydrogen gas at $0^{o}C$ compared to the distribution at $273^{o}C$. Label each curve with the corresponding temperature.

(b) The vapour pressure of water as a function of temperature over the range from $-10^{o}C$ to $100^{o}C$. Label clearly the vapour pressure curve of ordinary water, undercooled water and solid ice on this diagram.

(c) The pressure as a function of temperature over the range from $0^{o}C$ to $273^{o}C$ for a given mass of gas in a system of constant volume.

(d) The time versus temperature relation when a dilute aqueous salt solution is partially frozen by slow uniform cooling from $10^{o}C$ to $-10^{o}C$.

10 5. Oxalic acid ($H_2C_2O_4$) is a weak diprotic acid. A solution of sodium hydrogen oxalate ($NaHC_2O_4$) in water at $25^{o}C$ is acidic with a pH of 2.7

In terms of acid-base equilibria explain the acidity of the solution, giving all relevant equations.

15 6. A solution was prepared by dissolving 0.122 gram of pure solid benzoic acid (C_6H_5COO-H) in enough water to give 500 ml. of solution at $25^{o}C$.

The experimentally determined pH of the solution at $25^{o}C$ was 2.90. Calculate a numerical value for the ionization constant of benzoic acid as a weak acid (K_A) from the problem data.

Atomic Weights: H 1.0, C 12.0.

Marks

15 7. A pure compound was known to contain only the elements carbon and hydrogen. At a pressure of 2 atmospheres and a temperature of 27°C the compound was a gas with a density of 1.30 grams per litre.

(a) Calculate the molecular weight of the compound from the problem data.

(b) What is the molecular formula of the compound?

R = 0.0820 atmosphere-litres per °A per mole
Atomic Weights: H 1.0, C 12.0.

15 8. One litre of an acidified 0.100 Molar copper sulphate solution was electrolyzed using platinum electrodes and a current of 0.200 ampere for 96,494 seconds.

(a) At the anode the sole reaction was the oxidation of water. Calculate the volume of oxygen gas (S.T.P.) liberated during the electrolysis.

(b) At the cathode two reactions occurred simultaneously - copper was deposited and hydrogen gas evolved. At the conclusion of the electrolysis the solution was found to be 0.010 Molar in copper sulphate.

Calculate the volume of hydrogen gas (S.T.P.) evolved during the electrolysis.

One Faraday 96,494 coulombs.
Gram Molecular Volume at S.T.P. 22.4 litres.

15 9. A solution was prepared by dissolving 0.60 gram of pure anhydrous acetic acid (CH_3COO-H) in 1000 grams of water. The experimentally determined incipient freezing point temperature of the solution was -0.0190°C.

Calculate the apparent degree of dissociation of the acetic acid in this solution at the freezing point.
Atomic Weights: H 1.0, C 12.0.
Molal depression of the freezing point for water 1.86°C.

English Literature.

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

Annual Examinations, 1959

FIRST YEAR

ENGLISH LITERATURE

Examiners: The Staff in English

Answer FOUR questions in all, ONE from each part. Students are advised to give 30 minutes to answering each question, and 30 minutes to the selection, planning and re-reading of answers.

PART A

1. In Gulliver's Travels Swift attempts to prove "the falsity of that definition animal rationale [rational animal], and to show it would only be rationis capax [capable of reason]." Discuss with reference to Book IV of Gulliver's Travels.

2. The character of Gulliver changes considerably in the several books of Gulliver's Travels. Indicate what some of these changes are, together with Swift's purposes in making them.

PART B

1. The Greeks and the Elizabethans traditionally conceived of tragedy in terms of a FALL from a high estate; the contemporary conception of tragedy defines itself around man's inability to RISE. Compare EITHER King Lear OR Samson

Agonistes AND Death of a Salesman from this point of view.

2. In a play that is structurally well-knit, every scene or act must contribute BOTH to character revelation and to the advancement of the action. Examine critically ONE of the following scenes from this point of view:

King Lear, Act I, scene 1.
Samson Agonistes, the opening scene (to the entry of Manoa).
Saint Joan - the Epilogue.

3. "The catastrophe which befalls the tragic hero springs partly from his own character and actions, and partly from those of others." In the light of this quotation compare as tragic heroes Lear and EITHER Willy Loman OR Joan.

PART C

1. Discuss the kinds of comic effect in Tom Jones, making specific reference to the text.

2. Describe and contrast the techniques of characterization used by Joyce in Portrait of the Artist as a Young Man with those of Hardy in Tess of the D'Urbervilles. Make use of specific examples.

PART D

Comment fully on any ONE poem which you have studied this year, considering such matters as theme, mood, form, language, imagery and special poetic techniques.

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

Annual Examinations, 1959

FIRST YEAR
ENGLISH COMPOSITION

In your English Literature course this year, you have encountered four major categories of literature: satiric prose, drama, novel, and poetry.
Write an essay of approximately 1000 words on some aspect of the course. Here are some possible leading ideas:

(a) The genre or category of literature which you have enjoyed most or least.

(b) Any specific text which particularly appealed to you.

(c) Any new insights derived from the course.

Your essay must take the form of a well-developed, coherent and convincing discussion. You are reminded of the importance of correctness in paragraphing, grammar, spelling, and punctuation.

UNIVERSITY OF TORONTO
Faculty of Arts

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ANNUAL EXAMINATIONS, 1959

First Year

FRENCH 1a

Part A
(Write in a separate book)

Marks

30 1. Translate into French:

Marie. Am I disappointed! For more than a year Pierre and I have been looking for a nice little restaurant that's not too expensive, and I was beginning to think we had found one at last. There must be one in Paris somewhere. But the one we went to yesterday turned out to be as expensive as all the others. Looking at the menu, we thought the prices were reasonable, but it took them an hour to serve us; and later on, when the bill was brought, I almost lost my temper. Three thousand five hundred and seventy-one francs! And we had hardly eaten anything! At first I thought they'd given us the wrong bill, but Pierre checked everything; the bill was ours, all right. It was no use for Pierre to tell me that we didn't have to leave a tip; I wanted him to go and get the waiter. "You've worked too hard to throw away money like that!" I told him; "don't give them any of it! I'm sitting here until they agree to change that bill!" Do you think I was wrong?

Louise. Not at all, but what do you expect? They're all robbers in the restaurants.

10 2. Translate into English:

Maman est une femme sensible, c'est-à-dire admirablement défendue contre les fortes déceptions de la vie, impénétrable. Aussi loin qu'elle remonte, dit-elle, le cours des ans, sa mémoire ne lui présente qu'une succession monotone d'événements futiles, pareille au déroulement de la mer sur une pente unie: le flot la caresse sans l'user. A l'ancien curé de Fenouille qui s'étonnait courtoisement de la trouver toujours si résignée, si docile aux volontés d'une Providence qu'elle feint pourtant d'ignorer--non par malice assurément--elle répondait simplement:

"La douceur a raison de tout"--"Chère dame, s'écriait le bonhomme, vous venez de parler comme une sainte!" Et c'est vrai que rien n'a résisté à cette douceur, jamais. A force d'en appeler sans cesse à ce témoin irrécusable, la douceur, il semble qu'elle se soit prise elle-même à son jeu, ainsi qu'un enfant fait du tigre imaginaire dessiné par lui sur le mur.

Part B
(Write in a separate book)

Marks

15 3. Outline the importance of Béralde and Toinette in Le Malade Imaginaire.

OR

Indicate three scenes that seem to you to be comic high spots in the play and briefly give reasons for your choices.

8 4. (a) Translate into English:

"Étoiles de justice, abîmes de sciences, miroirs de vérité, qui avez la pesanteur du plomb, la dureté du fer, l'éclat du diamant, et beaucoup d'affinité avec l'or, puisqu'il m'est permis de parler devant cette auguste assemblée, je vous jure par Orosmade que je n'ai jamais vu la chienne respectable de la reine, ni le cheval sacré du roi des rois."

4 (b) Point out two humorous features in the above lines.

3 (c) State in a sentence or two the significance of one of the following: Le Souper; Le Bûcher; La Femme Battue.

7 5. Translate into English:

(a) Derrière elle, dans un nuage de poussière et emportée par la descente, une malle-poste au grand galop se précipitait comme une trombe. En voyant cette femme qui ne se dérangeait pas, le conducteur se dressa par-dessus la capote, et le postillon criait aussi, pendant que ses quatre chevaux qu'il ne pouvait retenir accéléraient leur train.

8 6. "The contrast between the opening scenes and the final scenes in L'Attaque du Moulin makes an unforgettable impression upon the reader." In a few lines explain this opinion.

Marks

15 7. Answer one of the following:

(a) Contrast Lamartine and Vigny with reference to the poems you have read.

OR

(b) Write an appreciation of any French poet you have studied this year.

OR

(c) Discuss Gautier's theory of poetry.

Mathematics

UNIVERSITY OF TORONTO
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1959

Preprofessional Year

MATHEMATICS

Examiner—M. EISEN

Candidates shall do ALL *of the questions in Part A and any* THREE *questions in Part B.*

PART A

1. Integrate the:

(*a*) $\int\left(\frac{2x^5-4x^4-6x^3+10x^2+x+3}{x^4-3x^3-3x^2+11x-6}\right)dx$

(*b*) $\int(\cos x)^{-7}\,(\sin x)^5 dx$

(*c*) $\int_0^1\left(\frac{x^3}{\sqrt{x^2+1}}\right)dx$.

2. (*a*) Find $\lim_{n\to\infty}\left[\frac{1^5+2^5+3^5+\ \ldots\ +n^5}{n^6}\right]$

(*b*) Find the $\lim_{x\to 0}\frac{(1+x)^{1+x}-1}{x}$ by L'Hospital's rule and also by considering the above limit as the definition of the derivative of a certain function at a certain point.

(*c*) Find $\lim_{x\to 0}(1-2x^2)^{1/x^2}$ by L'Hospital's rule and also from the definition of $e = \lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n$.

PART B.

3. (*a*) Find the surface area of a sphere.

(*b*) Find the volume of a sphere by considering the sphere made up of layers of thin spherical concentric shells, and using the results of (*a*) to find the volume of a single shell.

4. Suppose that:

(i) $x_0 < x_1 < x_2 < \ldots < x_n$

(ii) $f(x)$ is a continuous function

(iii) a_i are real non negative numbers.

Show that $\sum_{i=0}^{i=n} a_i f(x_i) = f(\xi)\left[\sum_{i=0}^{i=n} a_i\right]$, where $x_0 < \xi < x_n$. State the theorem used in your proof.

5. (*a*) Find the range of values of K if the equation

$$x^4 - 14x^2 + 24x - K = 0$$

has 4 unequal roots by using Rolle's theorem.

(*b*) Verify and interpret your result by considering the graphs of $y = x^4 - 14x^2 + 24x$ and $y = K$.

6. (*a*) Find the area of a n-sided regular polygon inscribed in a circle by dividing it into n triangles and using the fact that the area of a triangle is $\frac{1}{2}$(base $\times$ height). (Regular means all n sides are equal).

(*b*) Find the total length of the sides of this regular polygon.

(*c*) Find the area and the circumference of the circle by obtaining the limits of the two expressions in (*a*) and (*b*) respectively as n becomes infinite.

7. (*a*) By the use of de Moiver's theorem or otherwise find the sum of the series

$$\tfrac{1}{2} + \cos x + \cos 2x + \cos 3x + \ldots + \cos nx.$$

(*b*) Use the result obtained in (*a*) to find the sum of the series

$$\sin x + 2 \sin 2x + 3 \sin 3x + \ldots + n \sin nx.$$

8. (*a*) Find the length of one arc of the parabola $y = x^2$ from the origin up to the point of intersection with the line $x = 3$.

(*b*) Find the area under the curve $y = \sin^3 x$ from 0 to 2π. That is, the area bounded by the curve and the x-axis.

9. (*a*) Apply Newton's method of approximating a root to $f(x) = \dfrac{1}{x} - N$. Thus obtain the formula $x_{n+1} = 2x_n - x_n^2 N$.

(*b*) Suppose $N > 0$ and $x_0 < \dfrac{1}{N}$.

Show that $\dfrac{1}{N} - x_{n+1}$ is greater than zero. Hence show by induction $x_n < \dfrac{1}{N}$. Show that $\dfrac{x_{n+1}}{x_n} > 1$ and that the sequence $\{x_n\}$ converges. State the theorem use in your proof. Find the limit of the sequence $\{x_n\}$ from the formula obtained in (*a*).

UNIVERSITY OF TORONTO
Faculty of Dentistry - Preprofessional Year
Faculty of Forestry - First Year

ANNUAL EXAMINATIONS, 1959

PHYSICS

Examiner - J. D. PRENTICE

Candidates may use slide rules. Answer any four questions. Use diagrams and formulae whenever possible to enhance clarity and conciseness.

1. (a) A space traveller arrives on a planet the radius of which he knows from astronomical data to be twice the radius of the earth. He wishes to find the mass of the planet. He has brought from the earth a calibrated spring balance and a 1 kgm weight. Describe a simple method by which he may determine the mass of the planet and show a sample calculation.

(b) He also brought a Geiger counter consisting of a copper wire of diameter 1.1×10^{-4} m stretched along the axis of a nickel cylinder. The tension in the wire was adjusted to 3 newtons when it was constructed (room temperature 20°C). The temperature on the surface of the planet is -100°C. What will be the tension in the Cu wire when the counter is used on the planet?

(c) If the Geiger counter operates best at a pressure of 3.5×10^{3} newtons/meter^{2}, assuming that he knew in advance the temperature on the planet where he wished to use the counter, to what pressure should he fill the Geiger counter in the lab (room temperature 20°C)?

2. (a) Show, with the aid of a diagram how the experiments of Davisson and Germer quantitatively confirmed De Broglie's hypothesis concerning the wavelength of moving particles.

(b) Illustrate the physical principles involved in the analysis of X-ray spectra with a Bragg crystal spectrometer.

(c) When white light is reflected from, (i) the surface of a long playing record, (ii) a puddle, on which is floating a very thin film of oil, coloured patterns are observed. Explain.

3. The electrons in a cathode ray tube are accelerated through a potential of 10,000 volts. If 0.1 joules of heat and light energy are produced every second where the electrons hit the screen

(a) what electrical current is flowing along the tube,

(b) how many electrons are arriving at the screen per second,

(c) how much power must be supplied by the 10,000 volt power supply?

(d) if the electrons pass between a pair of parallel plates 2 cm

apart with a potential difference of 1000 volts between them, the upper one being positive and the lower one negative what magnetic induction is required, in the region between the plates, to prevent the electrons from being deflected? Draw a diagram and indicate the direction of the required magnetic field.

4. If a beam of very slow neutrons is directed into a target of hydrogen gas, a neutron of mass 1.0090 a.m.u. may be captured by a proton of mass 1.0081 a.m.u. to form a deuteron of mass 2.0147 a.m.u. The excess energy is emitted as a gamma ray.

(a) Write the equation for the reaction and calculate the energy of the gamma ray.

(b) What is the wavelength of the gamma ray?

(c) If a beam of neutrons of velocity 10^7 m/sec were used instead of the very slow ones, what would be the velocity of recoil of the deuteron (assume the proton initially at rest) and what would be the energy of the gamma ray?

5. A demonstrator in a lab. finds that the labels have been removed from two a/c electrical sockets. He knows the r.m.s. voltage of each is 110 volts and that one is 60 cycles/second and the other 100 cycles/second.

He has available a 100 watt tungsten light bulb connected in series with a 100 microfarad capacitor.

(a) Describe a simple test to determine which socket is the 60 cycle/second one, explaining the observations and the conclusion drawn from them.

(b) If he also has a 70.3 millihenry inductance draw the circuit diagram of the arrangement of the inductance with the lamp and capacitor which will give the maximum light when plugged into the 60 cycle/sec socket. Explain very briefly your choice.

(c) Three tuning forks A, B and C of natural frequencies 395, 275 and 120 cycles/sec respectively, mounted on appropriate sounding boxes, are placed near each other. Describe the effect on C when (i) A is sounded alone, (ii) B is sounded alone, (iii) A and B are sounded together. Explain briefly.

6. (a) Describe briefly a major contribution to physics of any two of Millikan, Einstein, Chadwick, Planck.

(b) Describe briefly Bohr's model of the Hydrogen atom, and the previously unobserved part of the spectrum of atomic hydrogen, the existence of which he predicted.

(c) The energy of the electron in the first Bohr orbit is -13.58 electron volts. What is the wave length of the ultra violet limit of the line spectrum of atomic hydrogen.

7. (a) A golf ball weighing 0.1 kgm is driven, and leaves the tee with a velocity of 50 meters/second. Assuming all the mass of the club is concentrated in its head which weighs 0.3 kgm, what is the change in velocity of the club head during the impact?

(b) A monochromatic beam of X-rays was scattered from an amorphous solid and the X-rays scattered directly backwards (i.e. at 180° to the incident direction) were found to contain a low energy component of wavelength 5 A.U. If the low energy photons resulted from Compton scattering, what was the wavelength of the incident beam?

(c) Explain why a beam of sunlight falling on a surface and being absorbed by it exerts a pressure on the surface. If the beam delivers an energy, E, joules/(meter^2. second) which is all absorbed, what pressure is exerted on the surface?

TABLE OF CONSTANTS

$k = 1/4\pi\epsilon_0$	9×10^9 nt m^2 coul^{-2}
Electron mass	9×10^{-31} kgm
Electron charge	1.6×10^{-19} coulombs
Planck's constant, h	6.62×10^{-34} joule sec
Speed of light in vacuum, c	3.00×10^8 m sec^{-1}
Proton mass	1.6723×10^{-27} kgm
Atomic mass unit a.m.u.	1.6599×10^{-27} kgm
Angstrom Unit, A.U.	10^{-10} m
Universal constant of gravitation, G	6.66×10^{-11} m^3 kg^{-1} sec^{-2}
Radius of earth	6.38×10^6 m
Mass of earth	5.98×10^{24} kgm
Thermal coefficient of linear expansion of copper	1.50×10^{-6} (°C)$^{-1}$
Thermal coefficient of linear expansion of nickel	1.10×10^{-6} (°C)$^{-1}$
Young's modulus for copper	1.2×10^{11} nt m^{-2}

Zoology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATION, 1959

PREPROFESSIONAL YEAR

ZOOLOGY

Parts A and B to be written in separate books

Part A

1. Briefly discuss the functions of any five of the following in amphibia and indicate any changes in function in mammals.

   (a) The skin
   (b) The cerebral hemispheres
   (c) The Wolffian duct in both sexes
   (d) The renal portal vein
   (e) The Muellerian duct
   (f) The intestine from the end of the small intestine to the anal opening
   (g) The heart

2. (a) With the aid of diagrams show how sex is inherited in mammals.
   (b) What is meant by sex linked inheritance?
   (c) Give four characteristic indices of sex linkage in human inheritance.

3. (a) List the metabolic (anabolic and catabolic) processes carried on in a living animal.

(b) Explain briefly how each of these is carried on in Planaria. (Cover each point by a separate short paragraph)

Part B

1. Write a brief note to describe any five of the following. Use diagrams to illustrate your answer.

(a) Pseudopodia
(b) Prostomium
(c) Cnidoblast
(d) Trichocyst
(e) Notopodium
(f) Scolex
(g) Myomere
(h) Telson

2. Using the rabbit as an example, discuss the axial skeleton.

Comparative Dental Anatomy

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, Session 1958-59

FIRST DENTAL YEAR

COMPARATIVE DENTAL ANATOMY

Examiner: C. S. Churcher

Answer any FOUR questions.
Whenever possible, diagrams should be used to illustrate your answers.

1. Describe the development of teeth in the Cyclostamata. Compare this with the development of the placoid scale.

2. Give an account of the adaptations of the teeth to diet in mammalia, with special reference to those specimens studied in the laboratory.

3. Describe in detail the anatomy of the scales of fish, and explain the possible evolutionary relationship between the various forms.

4. Compare the development of feathers with the development of reptilian scales. Explain why they may or may not be homologous.

5. Describe in general terms, giving

examples from the various vertebrate groups, the modifications of teeth in respect to diet.

6. Give an account of the embryology and morphology of the mammalian tooth.

7. Write notes on FIVE of the following:

(a) Horny epidermal structures.

(b) Carnivorous dentitions.

(c) Hair.

(d) Cope-Osborn Theory.

(e) Teeth in snakes.

(f) Skin in Amphibia.

(g) Heterodonty.

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

FIRST DENTAL YEAR

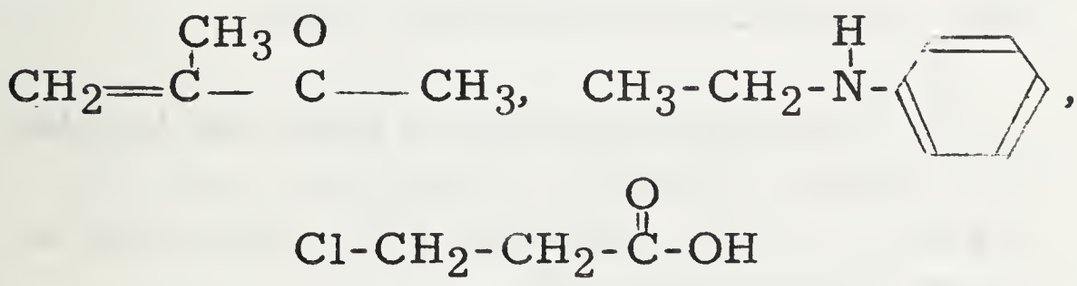
CHEMISTRY 216

Examiner: A. G. Brook

No aids permitted.

1. Write structural formulae, and indicate a use for FIVE of the following compounds: DDT, TNT, Methyl Orange, "Dreft", meso-tartaric acid, cis-sodium oleate, Dacron.

2. (a) Name the following compounds correctly:



(b) Using the appropriate compound from part (a), and the appropriate reagents, write equations, naming the products, corresponding to the following reactions or processes: acetylation, esterification, iodoform reaction, dehydrohalogenation, hydrogenation.

(c) Show by suitable equations one additional characteristic reaction of each of the six functional groups (including phenyl) present in the compounds in part (a), naming the products in each case.

3. Define or explain with appropriate examples TEN of the following terms: barbiturate drugs, Hinsberg test, chromophore, L-amino acid, homologous series, Friedel-Crafts reaction, thermoplastic polymer, trans-geometrical isomer, tertiary alcohol, glycoside, enantiomer, octane rating, conjugated double bonds.

4. Write structural formulae and equations for the following reactions, and name all products.

(a) Methyl ethyl ketone treated with lithium aluminum hydride, and the product then heated with concentrated sulphuric acid.

(b) Isopropylmagnesium bromide treated with carbon dioxide, hydrolyzed, and the organic product refluxed with phenol and a trace of mineral acid.

(c) Aniline treated with cold sodium nitrite and hydrochloric acid and the product treated with N, N-diethylaniline under alkaline conditions.

(d) p-nitrobenzyl chloride heated with potassium cyanide and the product then treated with refluxing dilute acid.

(e) 1-methylcyclopentene treated with hydrogen chloride, and the compound then treated with refluxing dilute aqueous alkali.

5. Write half-page notes on each of FIVE of the following topics: Rubber, Cellulose, Proteins, Vegetable Oils, Bakelite, Colour in Organic Chemistry, Application of Organic Chemistry to Dentistry.

6. Show, using suitable equations, how to prepare, -

(a) aspirin from benzene and acetic anhydride,

(b) nylon from phenol.

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATION, 1959

GROSS ANATOMY - FIRST DENTAL YEAR

1. Describe the maxilla under the headings:

   (a) growth and development
   (b) form
   (c) relations.

2. Describe in detail:

   (a) the pharyngo-tympanic tube
   (b) the first pharyngeal arch.

3. Give an account of the lingual artery.

4. Write concise notes on:

   (a) the lateral pterygoid muscle
   (b) the general arrangement of the urinary system
   (c) the spheno-palatine ganglion.

5. Give a brief account of:

   (a) the symphathetic nervous system
   (b) the structure and connections of the cerebellum.

Microscopic Anatomy

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

MICROSCOPIC ANATOMY

FIRST DENTAL YEAR

Marks Answer parts A and B in separate examination books.

PART A - GENERAL

20 1. Describe in detail the microscopic structure of the esophagus.

25 2. Compare and contrast compact bone and cartilage under each of the following headings:

(a) Microscopic appearance.

(b) Origin.

(c) Nutrition.

15 3. Give a detailed description of the microscopic structure of the parathyroid gland.

PART B - DENTAL

20 1. (a) Describe the changes that occur in the microscopic structure of the tissues of the dental pulp throughout life.

(b) Explain how pulp tissue contributes to the formation of dentin.

20 2. Describe in detail, the essential changes related to "physiological mesial drift" that occur in the tissues of the teeth and supporting structures.

Oral Anatomy

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

FIRST DENTAL YEAR

ORAL ANATOMY

1. Define the terms variation and anomaly. Prepare a classification of variations and anomalies and give an example for each division and subdivision in your classification.

2. How do the following pairs of teeth differ anatomically:

i $\overline{6}|$ and $\underline{6}|$

ii $\underline{3}|$ and $\overline{3}|$

iii $\underline{4}|$ and $\underline{5}|$

iv $|\overline{6}$ and $|\overline{e}$

3. (a) With the aid of sketches, describe how space is provided in the dental arch for the replacement of the primary anterior teeth by their permanent successors.

(b) Describe how the upper and lower first permanent molars erupt into correct occlusal relation to one another. In your answer, give consideration to the various terminal planes which can occur at the distal surfaces of the second primary molars.

Use diagrams to supplement your answer.

4. Draw the occlusal view of $\overline{6,\ 5,\ 4|}$ in their correct contact relation to one another. Label the grooves, pits, and fossae on $\overline{6|}$. Label the cusps and ridges on $\overline{5|}$.

Make your drawings approximately four times the normal size.

	Mesiodistal diameter	Buccolingual diameter
$\overline{4\|}$	7.0 mm	7.5 mm
$\overline{5\|}$	7.0 mm	8.0 mm
$\overline{6\|}$	11.0 mm	10.5 mm

5. (a) At two years of age a child changed his residence from an area where there was twelve parts per million of sodium fluoride in the drinking water (enough to produce orange brown stains in the tooth enamel) to an area where there was no fluoride in the water. Which permanent teeth could be expected to exhibit staining in adult life?

(b) You are asked to examine a child 20 months of age. His upper and lower, central and lateral, primary incisors have erupted but no other teeth are visible. Is this a normal condition?

Give reasons for your answer.

Bacteriology

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1959

Second Dental Year

BACTERIOLOGY

1. What mechanisms operate in vivo in acquired immunity?

2. Give a short description, using examples, of three different types of vaccines.

3. List four diseases in which an antiserum is administered prophylactically or therapeutically. How effective is this procedure in each case ?

4. Explain pathogenesis of staphylococcal infections.

5. What are the differences in respect to : the route of infection, incubation period, type of onset, duration, age distribution, localization of the agent, carrier state in infectious hepatitis and serum hepatitis?

6. What are the differences between bacillary dysentery and amebic dysentery in respect to development of the disease, clinical symptoms, and laboratory procedures for diagnosis.

7. What is the sequence of events which can lead to subacute bacterial endocarditis.

8. Answer question 8A or 8B.

(a) What are the oral manifestations of infection from:
(1) herpes simplex virus
(2) varicella virus
(3) measles virus
(4) coxsackie virus

(b) What is the laboratory procedure used to diagnose a case of suspected non-paralytic polio.

9. (a) List the indigenous potential pathogenic bacteria of man, and state the dominant distribution in man.

   (b) Give a method for isolation of four gram positive organisms from a sample of the bacterial flora of man.

10. Write a concise note on five of the following items:

T. P. I. test	Serum sickness
Tuberculin test	Salk vaccine
B. C. G.	Thrush
Schick test	Borrelia Recurrentis
Dick test	Weil's disease

Biochemistry

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Household Science

Annual Examinations, 1959

SECOND DENTAL YEAR
SECOND YEAR HOUSEHOLD SCIENCE

BIOCHEMISTRY

Examiner: Dr. G. E. Connell

Answer four questions

1. Discuss the importance of derivatives of nicotinamide in intermediary metabolism. Write the structural formula of one of the active derivatives and indicate the chemical change which it undergoes as a co-factor in enzyme reactions.

2. Discuss:

(a) The digestion and absorption of fats in the intestine,

(b) The chemistry and physiological significance of phospholipids.

3. What is meant by the term "high energy bond"? Give three examples of different types of high energy bonds which occur in biological systems, and show how these bonds may be formed in metabolic reactions.

4. Define an essential amino acid. Name three amino acids which are not considered to be essential in the nutrition of adult humans. Write their structural formulae and show how they may be synthesized in animal tissues from ammonia and intermediates in carbohydrate metabolism.

5. Discuss the role of hormones of the pancreas, the anterior pituitary gland, and the adrenal cortex in the regulation of metabolic processes.

6. Write a short account of three of the following:

(a) the chemical composition of tooth enamel.

(b) the determination of the amino acid sequence of proteins.

(c) the chemical composition of deoxyribonucleic acid.

(d) a method for the quantitative determination of reducing sugar.

Pharmacology

UNIVERSITY OF TORONTO
Faculty of Dentistry

Final Examinations, May 1959

SECOND DENTAL YEAR

PHARMACOLOGY

Write plainly. Up to 5 marks will be added for neatness, legibility and concise answers.

Marks	
15	1. Write a short note on the desirable properties of drugs employed to combat infections.
14	2. Define caustic. Discuss the pharmacology and value of caustics employed in Dentistry.
15	3. Discuss the toxic effects of morphine, acetylsalicylic acid, and pentobarbitone.
15	4. What is meant by basal anaesthesia? Discuss briefly the pharmacology of three different drugs employed as basal anaesthetics.
12	5. What is meant by the term "tranquillizing" drug? Discuss the pharmacology of two which are chemically different.

12 6. Define idiosyncrasy, accumulation, euphoria, blocking agent. Give examples of drugs causing these effects.

12 7. Give synonyms, common dosage forms, and mode of administration of pentobarbitone, novocaine hydrochloride, demerol.

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

SECOND DENTAL YEAR

PHYSIOLOGY

Answer only FIVE of the eight questions. The questions are of equal value.

1. (a) Describe the effects of transfusing "incompatible" blood from a donor to a recipient.

(b) Describe briefly the factors or processes that operate to cause the arrest of bleeding from wounds.

2. (a) Show, with the aid of a table or diagram, the operation of the forces that are involved in the interchange of fluid between the blood plasma and the tissues. Indicate the values of these forces, with the units of measurement.

(b) Outline the functions of the lymphatic system.

3. (a) List the factors that are involved in the return of blood to the heart, and outline their modes of action.

(b) Describe the origin and transmission of the heart beat.

4. (a) Define and indicate thephysiological significance of the:

(i) Vital capacity

(ii) Dead space of the respiratory system

(iii) Intrathoracic pressures (intrapleural pressures).

(b) Describe briefly the chemical control of respiration.

5. (a) Discuss the activities of the kidney tubules.

(b) Describe briefly the metabolic processes that influence the level of sugar in the blood.

6. (a) Outline the effects of denervation of skeletal muscle and of the heart.

(b) Briefly describe at least six characteristics of reflex activity.

7. (a) Outline the control of salivation in man.

(b) Outline the functions of saliva and indicate the components responsible.

8. Write on any two of the following:

Outline the effects caused by removal of:

(a) The pancreas.

(b) The thyroid gland.

(c) The adrenal glands.

(d) The parathyroid glands.

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

THIRD DENTAL YEAR

EXAMINATION IN ANAESTHESIA

1. Discuss three of the frequent causes of failure to obtain adequate anaesthesia following a local injection.

2. What emergency armamentarium should be available for the treatment of reactions to local anaesthetics and what are the indications for each component part of this armamentarium?

3. Discuss the concept of balanced anaesthesia in general anaesthesia. Why is it usually indicated for the dental out patient?

4. Differentiate and discuss the signs of anaesthesia as opposed to the signs of the physiologic condition of the patient during general anaesthesia.

General Pathology

UNIVERSITY OF TORONTO
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1959

Third Dental Year

GENERAL PATHOLOGY

Examiner: J. D. Hamilton

All questions to be answered *All questions of equal value*

Time: 2 hours

1. (a) What is exudate?
   (b) Give a brief account of its formation and functions.

2. (a) What are the principal characteristics of allergic inflammation?
   (b) Give 3 examples of allergic inflammation.

3. Compare and contrast infection of skin caused by Staphylococcus pyogenes with that caused by the Streptococcus hemolyticus.

4. List the various stages of syphilitic infection, and describe the lesion most characteristic of each stage.

5. (a) List the most important causes of intravascular clotting of blood.
   (b) Describe some of the consequences of intravascular clotting.

6. Give a brief account of how tumours spread.

7. Give an account of the pathogenesis of subacute bacterial endocarditis.

8. (a) What is diabetes mellitus?
   (b) What is the importance of this disease to the dentist?

9. (a) What is leukemia?
   (b) Give a brief account of the lesions that may be found in this disease.

10. Discuss the pathogenesis of acute osteomyelitis.

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Faculty of Dentistry

Annual Examinations, 1959

THIRD DENTAL YEAR

ORAL PATHOLOGY

NO PAPER AVAILABLE

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1959

Third Dental Year

EXAMINATION IN PREVENTIVE DENTISTRY

Part A

Answer Part A in one book and Part B in another

1. Answer questions (a) to (o) in one sentence or less.

   (a) What is the major single organic component of
   (i) enamel
   (ii) dentin
   (iii) cementum

   (b) List three characteristics of the hydroxyapatite crystal lattice.

   (c) What is a possible function of mucopolysaccharides in dental tissues ?

   (d) State two theoretical mechanisms by which fluorides may prevent dental caries.

   (e) In what tissues is fluoride stored in the human body?

   (f) When consuming fluoridated water at the concentration of one part fluoride to a million parts of water, approximately what percentage of the fluoride is excreted under normal circumstances ?

   (g) Name the chief buffer system in the saliva.

   (h) What substrate does the bacterial enzyme urease act on and what is the product of its action?

   (i) Name one salivary component, the concentration of which is directly reflected by its blood level.

(j) If saliva was devoid of inorganic elements, what would be the major dental clinical abnormality resulting from the absence of these elements ?

(k) Name two enzymes derived from bacteria which are found in 'resting' saliva. What is the action of one of the enzymes ?

(l) Name two enzymes found in saliva obtained direct from a salivary duct. What is the action of one of the enzymes ?

(m) Name two caries activity tests.

(n) What constituents of the saliva are important in calculus formation?

(o) What are the major constituents of a dental plaque ?

2. True or False.

(Copy the letters representing each question and note true or false after them. Do not guess--marks will be deducted for incorrect answers.)

(a) Dental caries has been demonstrated in bacteria-free animals.

(b) Dental caries has been demonstrated in a caries susceptible species of laboratory animals which were fed a cariogenic diet via a stomach tube.

(c) The fluoride ion penetrates through tooth substance more readily than a urea ion.

(d) The solubility product constant is greater for calcium fluoride than for the inorganic elements in teeth.

(e) A correlation between the pH of saliva and caries susceptibility has been demonstrated.

(f) Glycolytic enzymes in bacteria are intracellular.

(g) Escape of carbon dioxide from saliva causes an increase in pH.

(h) The present available caries activity tests are primarily based on the numbers and activity of acidogenic bacteria in the oral cavity.

(i) Fluorides are excreted through the sweat glands.

(j) The storage of skeletal fluoride, consumed at a definite concentration, stabilizes itself with time.

(k) Sodium N-lauroyl sarcosinate is adsorbed by the dental plaque.

(l) The carbonate content of teeth is influenced by the calcium/phosphorus ratio of a diet.

(m) Laboratory and clinical evidence indicates stannous fluoride is a superior topical cariostatic agent than sodium fluoride.

(n) The organic constituents of dentin have little metabolic "turnover".

(o) Oral sugar clearance is correlated with the dental caries index.

3. List the major findings of the Vipeholm dental caries study.

Part B

1. Which food group in Canada's Food Rules supplies the following in significant amounts?

   (a) Vitamin C
   (b) Protein
   (c) Riboflavin
   (d) Thiamin
   (e) Iron
   (f) Calcium

   Explain, giving types of food and relative cost in each case.

2. Explain the procedure followed here to determine the adequacy of a patient's diet and its possible relationship to his susceptibility to dental caries.

3. (a) Define basal metabolism.

   (b) List at least ten factors influencing the metabolism of the body.

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SURGERY

Third Dental Year

1. A patient has a carbuncle of the upper lip.

   (a) Describe the local and systemic clinical features.

   (b) Describe a method of treatment.

2. (a) Describe the signs and symptoms of a fracture.

   (b) Define an open or compound fracture.

   (c) Enumerate four causes of delayed union.

3. (a) Describe the clinical characteristics of a malignant tumour.

   (b) Describe the local and general clinical features of an advanced palpable malignant tumour.

4. Describe the etiology and clinical features of a thyroglossal cyst lying just below the hyoid bone.

Dental Oral Surgery & Anaesthesia,
Radiology

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

FOURTH DENTAL YEAR

DENTAL ORAL SURGERY AND ANAESTHESIA

Value - 66 Marks

1. (a) List the properties of the following general anaesthetic agents:

(i) Sodium Pentothol

(ii) Nitrous Oxide

(iii) Trichlorethylene.

(b) What are the contra-indications for using any one of the above as the sole anaesthetic agent?

2. For what would you employ the agents listed below? Give the dosage of each as it relates to an average white healthy male. How is each administered?

(i) Demerol Hydrochloride

(ii) Hyoscine Hydrobromide (Scopolamine)

(iii) Sodium Pentobarbital (Nembutal)

(iv) Vitamin K

(v) Benadryl.

3. List three factors that might result in a swelling in the submaxillary area. Discuss all three resultant conditions from the standpoint of differential diagnosis.

4. Describe in detail the correct surgical procedures for preparing a mouth for the insertion of an immediate upper denture (use diagrams).

RADIOLOGY

Value - 34 Marks

1. Describe the radiographic appearance of the different types of cysts which may be found in the mandible and maxilla.

2. Discuss from the point of view of radiology "External Resorption" and "Internal Resorption". Use diagrams to illustrate your answer.

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FOURTH DENTAL YEAR

PAPER #2

PROSTHODONTICS

Value - 51 Marks

1. Give an outline of the clinical and laboratory procedures for complete dentures for a patient from the first appointment to the completion of the treatment.

2. A patient, age 14, has fractured the right maxillary central incisor at the junction of the middle and gingival thirds of the tooth. Endodontic treatment has now been successfully accomplished.

Name and describe briefly the type of crown that is indicated to restore this tooth, and give an accepted technique for the construction of:

(a) An individual crown;

(b) A crown to be used as a fixed bridge attachment.

Write a one-page answer and illustrate with drawings.

3. (a) Discuss clasp retention for removable partial dentures under the following headings:

(i) The effects of excessive retention;

(ii) How equalized retention may be obtained between several retainer teeth;

(iii) The functions of the various parts of a circumferential clasp.

(b) Describe briefly the type of direct and indirect retention best suited for the indicated dental arch. The maxillary replacement is a complete denture.

R _____ | _____ L

- - 5 4 3 2 1 | 1 2 3 4 5 - -

DENTAL PRAXIS

Value - 16 Marks

Discuss some of the pertinent factors in establishing and maintaining a dental practice.

MEDICINE

Value - 33 Marks

Answer two of the following questions

1. (a) Compare the clinical manifestations of rheumatoid arthritis and osteoarthritis.

(b) Discuss the signs and symptoms, laboratory and x-ray findings, and the treatment of one form of arthritis, and its relationship to dental disease.

2. (a) Describe briefly three different types of goitre.

(b) Describe fully the symptoms, signs and treatment of one of the thyroid diseases mentioned above.

3. Write a brief note on (a) Hodgkin's disease, (b) Epilepsy, (c) Pulmonary emphysema, (d) Duodenal ulcer.

Periodontics, Operative Dentistry;
Endodontics

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1959

Paper #3

PERIODONTICS

Marks

1. In relation to periodontal pockets state concisely:

17 (a) A classification - illustrate with line drawings.
(b) Principles employed in reducing depths of pockets - illustrate with line drawings.

16 2. Variations in functional activities of the teeth have various effects on the periodontal tissues. State in point form evidence that supports this opinion.

OPERATIVE DENTISTRY

1. Discuss the factors you would consider in designing a restoration for a central incisor which has had successful root therapy but is fractured at the gingival line. List the various types of restorations possible.

2. (a) If you have a choice of using either hydrocolloid technique or compound in a copper band technique for taking an impression for a bridge, what factors would influence your choice?

(b) What are the short-comings of self-curing resin as a restoration material in natural teeth?

3. (a) Discuss and compare the gold inlay with the amalgam restoration from the standpoint of conservation of tooth structure in cavity preparation in a class II cavity.

(b) Explain where varnish is indicated for pulp protection and how it serves this purpose.

ENDODONTICS

1. The obliteration of the root canal is essential to the success of an endodontic treatment. Describe briefly the technic which you would follow:

(a) To obliterate the root canal in an incompletely calcified (open apex) root of a maxillary central incisor.

(b) to obliterate the root canal in a fully developed mandibular central incisor.

UNIVERSITY OF TORONTO
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Paper # 4
Fourth Dental Year

ORTHODONTICS

Marks

17 1. Discuss the mechanisms of canine adjustment in the treatment procedure of serial extraction.

16 2. (a) A patient aged 8 presents for treatment: The maxillary and mandibular arches are in good relationship and good form except for the maxillary right second deciduous molar. It is 3.0 mm gingival to the level of the maxillary right first bicuspid and first permanent molar. Briefly describe the management of this suppressed deciduous molar with the best possible advantage to the patient.

(b) A patient aged 8 1/2 presents for treatment: The following teeth are present.

6edc21	12cde6
6edc21	12cde6

The maxillary right central incisor is in crossbite causing a diastema between the mandibular central incisors and gingival recession of the mandibular right central incisor.

(i) List the possible causes of this condition.
(ii) What criteria should be present in order to achieve a satisfactory result by simple methods?
(iii) Describe a suitable method for the correction of this condition.

PEDODONTIC EXAMINATION

Marks ANSWER BRIEFLY AND IN POINT FORM:

17 1. (a) In the occlusion of a four-year od child it is found there is a primate space in the lower, and a parallel terminal plane in the molar region.

What relationship would you expect in the first permanent molars in this child's mouth at 7 1/2 years of age?

(b) A child of four years of age has a distal step in the molar region.

What relationship would you expect in the first permanent molars in this child's mouth at 7 1/2 years of age?

(c) In an eight-year old child, the lower E has been lost prematurely. The lower first permanent molar has moved forward to a point where its mesial surface is approximately 2 1/2 to 3 millimetres from the distal surface of D. The mesial buccal cusp of the upper first permanent molar occludes with the buccal groove of the lower first permanent molar.

Give the nomenclature you would use to describe the occlusion in the permanent molar region.

(d) In an eight-year old child, the upper E has been lost prematurely, and the first permanent molar has moved forward to a point where its mesial surface is 2 1/2 to 3 millimetres from the distal surface of the upper D. The distal buccal cusp of the upper first permanent molar occludes in the buccal groove of the lower first permanent molar.

Give the nomenclature you would use in describing the occlusion in the first permanent molar region.

Marks

16 2. (a) In a child of twelve years of age, a large cavity was evident in the lower first permanent molar. The x-rays showed a possible pulp exposure. When toilet of the cavity was completed, a slight pulp exposure was evident. The history revealed that the patient had experienced pain only when eating. Pulp capping, plus cement, plus amalgam was used to restore the tooth. Twenty-four hours later, the patient came to the office complaining that the tooth was sore to bite on, and severe pain was experienced after retiring at night. During the day, hot foods started the tooth ache which was relieved immediately by rinsing with cold water.

What is your diagnosis?

(b) In an eight-year old child a restoration was placed in the occlusal of the first permanent molar that did not require either pulp capping or cement lining. In four days the patient returned, explaining that on first receiving the filling he experienced pain when eating either hot or cold food. The history also revealed that, as time went on, he could eat hot or cold food and not experience pain.

(1) With this history what might one expect to see in the mouth?

(2) What is the condition that would render the tooth sensitive to both heat and cold?

(3) Why did the tooth become more tolerant to changes in temperature as time went on?

PREVENTIVE DENTISTRY

Answer one question only.

Value - Marks 17

1. The Provincial Government of Ontario has set up a Committee to investigate the advisability of fluoridating the water supply of Metropolitan Toronto and other cities in Ontario. Discuss the important aspects of this subject as you might with this Committee.

2. Disturbances of Nutrition and some Diseases influence dentition

   (a) Discuss one such condition influencing the decidious teeth.

   (b) Discuss two conditions that might influence the permanent dentition.

3. Discuss the importance of allergy as related to the clinical practice of Dentistry.

DENTAL PUBLIC HEALTH

Marks

17 1. You have decided to establish dental practice in a community in which a Health Unit operates:

   (a) List the public health services you would expect the Health Unit to provide.

   (b) What are the responsibilities of the dental practitioner in the community health programme ?

UNIVERSITY OF TORONTO
Faculty of Dentistry

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FIRST YEAR DENTAL HYGIENE

DENTAL ANATOMY

1. Draw the occlusal view of 6,5,4| in their correct contact relation to one another.

Label the grooves on 6|

Label the ridges on 5|

Make your drawings approximately four times the normal size.

	Mesiodistal diameter	Buccolingual diameter
4|	7.0 mm	7.5 mm
5|	7.0 mm	8.0 mm
6|	11.0 mm	10.5 mm

2. How do primary teeth differ from those of the permanent dentition?

3. When the large, upper permanent anterior teeth, 321|123, succeed the smaller, upper primary teeth, cba|abc, additional space must be created in the arch. How is this accomplished?

4. Where do the cusps of edc| meet the occlusal surfaces of edc| when these teeth are in centric occlusion?

5. How do the following pairs of teeth differ anatomically?

(i) 6| and 6|

(ii) 3| and 3|

(iii) 4| and 5|

Dental Prophylaxis

UNIVERSITY OF TORONTO
Faculty of Dentistry

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DENTAL PROPHYLAXIS

First Year - Dental Hygiene

Value	
20	1. (a) Outline the differentiation of types of periodontal disease. (b) State the relative frequency of occurrence of these types within the local population. (c) For which type of periodontal disease may the hygienist perform a main portion of the therapy?
20	2. Outline, in brief terms, a system of classification of gingivitis.
30	3. (a) How is natural cleansing of the mouth effected? (b) Outline briefly conditions in and about the mouth which would interfere with the self-cleansing mechanism.

(c) When the self-cleansing mechanism is not efficient, what measures could be employed for artificial cleansing?

15 4. What are the purposes and the effects of the periodontal pack?

15 5. Describe , using drawings, stages in the formation of dental calculus.

Dental Radiography
I Dental Hygiene

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

First Year Dental Hygiene

DENTAL RADIOGRAPHY

Marks

22 1. (a) Describe X-ray penetration.

(b) Describe the action of a developing solution and the effect of its chemical components on the emulsion.

26 2. (a) What is meant by the terms
(i) erythema dose?
(ii) gonadal dose?

(b) What precautions can be taken to reduce the hazards of radiation to the patient?

31 3. (a) Describe the factors affecting the positioning of film packets.

(b) What are the causes of lack of contrast on a film?

(c) What is meant by the terms:

(i) Distal shift? (illustrate)

(ii) Clearing agent?

(iii) Secondary radiation?

21 4. Describe the technique for radiographing the lower second molar view under the following headings:

(a) Purpose

(b) Head position

(c) Film placement

(d) Tube position

(e) Anatomical considerations.

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UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

Annual Examinations, 1959

FIRST YEAR
ENGLISH COMPOSITION

In your English Literature course this year, you have encountered four major categories of literature: satiric prose, drama, novel, and poetry.
Write an essay of approximately 1000 words on some aspect of the course. Here are some possible leading ideas:

(a) The genre or category of literature which you have enjoyed most or least.

(b) Any specific text which particularly appealed to you.

(c) Any new insights derived from the course.

Your essay must take the form of a well-developed, coherent and convincing discussion. You are reminded of the importance of correctness in paragraphing, grammar, spelling, and punctuation.

UNIVERSITY OF TORONTO
Faculty of Dentistry
Faculty of Pharmacy

Annual Examinations, 1959

First Year

ENGLISH LITERATURE

See:

Preprofessional Year

ENGLISH LITERATURE

Food Chemistry

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

Dental Hygiene - First Year

FOOD CHEMISTRY

Examiners: C. G. Elliott
J. Scott

ALL QUESTIONS TO BE ANSWERED

1. (a) Give an example of, and formula for, each of the following: fat, alkyne, tertiary alcohol, dicarboxylic acid, sugar.

(b) Give the common name and structural formula for: ethanol, methanal, sodium stearate, ethylene glycol, butanoic acid.

2. (a) Give a general classification for carbohydrates.

(b) Indicate the changes in simple sugar molecules which can give rise to different sugars.

(c) What carbohydrates would you expect to find in: paper, corn syrup, honey, liver, sugar beets, fresh potato, milk?

3. (a) Tell how you would prepare one liter of each of the following:

(i) 0.5N H_2SO_4
(ii) 3% W/V NaCl
(iii) 0.1 molar NaCl

H - 1; S - 32; O - 16; Na - 23; Cl - 35.

(b) Write equations for:

(i) Preparation of Ethanal from Ethanol
(ii) Preparation of an ester
(iii) Preparation of Acrolein from Glycerol.

4. Define, using equations where possible: Iodine number, isoelectric point, enzyme, indicator, D and L configuration, osazone, geometric isomerism, Fehling's test, hydrogenation, pH.

5. (a) Describe briefly a simple classification for proteins.

(b) Describe fully the simple units forming protein, and show how they are linked. Illustrate with formulae.

(c) Name two tests used in the laboratory to identify proteins. Explain the results observed using these tests.

(d) Which foods are good dietary sources of protein and which are poor? Why?

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Department of Anatomy

First Year Dental Hygiene

Annual Examinations, 1959

GROSS ANATOMY AND ANATOMY OF THE HEAD AND NECK

1. Give an account of the manner in which bone is formed. State its composition.

2. Give an account of the anatomical factors involved in inspiration and expiration.

3. (a) Describe the chief features of the tongue.

   (b) Give a short description of the nerve supply of the teeth.

4. Write short notes on

   (a) The Medi al Pterygoid Muscle

   (b) The Buccinator Muscle

   (c) The Salivary glands.

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Dental Hygiene - First Year

HISTOLOGY

Examiner: Miss W. C. Riddle

Marks

20 1. Describe the structural characteristics of the lamina dura and the supporting bone of the alveolar process.

20 2. Describe the tissues of the gingiva of a young human adult with normal occlusion.

15 3. What is the origin and the function of the following structures:

(a) dental lamina

(b) reduced enamel epithelium

(c) Hertwig's epithelial root sheath

20 4. Describe the cellular differentiation in the late bell stage of the enamel organ.

25 5. What are the functions of the periodontal membrane. Describe the tissue elements that maintain these functions.

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Divsion of Physical & Occupational Therapy
School of Nursing
ANNUAL EXAMINATIONS, 1959

FIRST YEAR DENTAL HYGIENE

PSYCHOLOGY In

NO PAPER AVAILABLE

UNIVERSITY OF TORONTO
School of Nursing

Annual Examination, 1958-59

SECOND YEAR DENTAL HYGIENE

Infection & Immunity - Preventive Medicine 8

BACTERIOLOGY

1. Outline an experiment designed to determine whether a given method of sterilizing hypodermic needles is effective in killing bacterial spores.

2. For skin freshly contaminated with staphylococci, outline an experiment to determine whether the application of a given disinfectant, or scrubbing with soap and water is more effective in reducing the number of staphylococci.

3. (a) Outline the isolation of beta-haemolytic streptococci from the throat.

(b) What evidence is necessary to show that the streptococci have been obtained in pure culture?

(c) How may one determine whether the streptococci thus isolated belong to the group pathogenic for man?

4. A waitress in a restaurant is suspected of being a carrier of Salmonella typhosa.

(a) What procedure is required to determine whether she is a carrier of this or any similar pathogenic bacteria?

(b) What further steps are necessary to identify the bacillus as S. typhosa?

4. (c) If S. typhosa is found, how will this affect the future of the waitress?

5. (a) Outline the preparation of tetanus toxoid.

(b) What tests are necessary to ensure that its use will be safe and effective?

(c) In the event of an injury which might be infected with tetanus bacilli, how would the preventive treatment of persons previously actively immunized differ from the treatment of those not immunized?

6. (a) How is tuberculin standardized?

(b) Why is it necessary to have solutions of different strength for the tuberculin test?

(c) Why is the tuberculin test used before and after giving B.C.G.?

7. How is a specimen of sputum examined for the presence of tubercle bacilli when they are not found by direct microscopic examination?

8. What tests are applicable to the examination of milk? Indicate the principle and purpose of each.

9. (a) How may the presence of colon bacilli be detected in a water supply?

(b) What is the significance of colon bacilli in drinking-water?

10. Give an example of each of the following kinds of immunizing agent:

(a) active virus
(b) inactivated virus
(c) living attenuated bacteria
(d) killed bacteria

UNIVERSITY OF TORONTO
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Annual Examinations, 1959

DENTAL HYGIENE II - 1959

Dental Public Health

10 1. (a) What definition would you give for public health?

(b) Name and describe briefly three of the basic principles of public health procedure.

10 2. (a) Name four categories into which preventive measures in dental public health fall.

(b) List in point form, the Dental Public Health Policy of the Canadian Dental Association.

30 3. In counselling work with mothers of pre-school children:

(a) Outline, in point form, how you would explain the dental caries process.

(b) What importance would you place on primary teeth? State your reasons.

(c) What nutritional instruction would you give the mother of a young child

suffering from rampant dental caries?

15 4. Reliable statistical information is required from 20,000 elementary school children who are screened annually for parent-notification of dental defects.

(a) Give the ramdom sampling ratio that would yield approximately 1,000 detailed records in each of the five age groups 5, 7, 9, 11 and 13 (equivalent to 5,000 records).

(b) Describe the random sampling procedure you would recommend for this purpose, and illustrate with a hypothetical class-room register.

(c) Describe the procedure you would recommend for absentees and in projecting random sampling from one classroom to the next.

15 5. Write short notes on <u>three</u> of the following:

(a) Tooth Mortality.

(b) Chi-square test.

(c) Percentage of caries-free children.

(d) Supplies required for school dental inspection.

20 6. Write brief notes on two of the following subjects:

(a) Blue Cross Hospitalization Plan.

(b) Visiting Nursing Services in Public Health.

(c) Fluorides in Dental Caries Prevention.

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DENTAL HYGIENE - SECOND YEAR

ANNUAL EXAMINATIONS, 1959

P A T H O L O G Y

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1. What is the difference between physiological hyperaemia and chronic passive hyperaemia? Illustrate.

2. Describe the process of resolution of an inflammatory state.

3. What significance is embolism. Describe three examples.

4. Give five examples of necrosis.

5. Give five distinguishing features to differentiate benign from malignant neoplasms.

6. Write a short note on the causes of anodontia.

7. Why is it necessary to fill the root canal of a tooth whose pulp is necrotic?

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

SECOND YEAR DENTAL HYGIENE

PHARMACOLOGY

1. (a) What protection does the government afford the patient who is purchasing drugs at a drug store

(b) Where would you locate information about the specific use of a drug.

2. Classify the following drugs:

(a) Demerol	(e) Coramine	(i) Sodium Pentobarbital
(b) Codeine	(f) Caffeine	(j) Cyclopropane
(c) Epinephrine	(g) Morphine	
(d) Atropine	(h) Procaine	

3. Discuss the effective ways of controlling contamination from bacteria in a dental office.

4. Name one circulatory and one respiratory stimulant, describe the theory of it action and state under what circumstances they might prove fatal.

5. The detail man from a pharmaceutical house extolls the value of a lozenge for dental hygiene. What information would you wish to have from him and how would you assess this information.

Physiology

II Dental Hygiene

UNIVERSITY OF TORONTO
Faculty of Dentistry

Annual Examinations, 1959

DENTAL HYGIENE - II Year

PHYSIOLOGY

NOTE: Candidates shall answer questions 1 and 2 and any two from questions 3, 4 and 5. FOUR questions constitute a complete paper.

1. (a) Give the normal average red cell count for men and women. What factors are involved in maintaining a normal red cell count?

   (b) Discuss the origin and function of the plasma proteins.

2. (a) List and discuss the factors maintaining normal arterial blood pressure.

   (b) Make a diagram showing arterioles, capillaries and venules; indicate the level of the blood pressure in the arterioles and venules.

3. (a) Discuss the physiological functions of the hormone produced by the adrenal medulla.

(b) Discuss the role of the liver in protein metabolism.

4. (a) Discuss the chemical control of respiration.

(b) Outline the factors which play a part in the filtration of materials in the renal glomerulus.

5. Outline the origin and action of the following substances:

(a) secretin
(b) trypsinogen
(c) bile salts
(d) steapsin
(e) prolactin

Preventive Dentistry

II Dental Hygiene

UNIVERSITY OF TORONTO
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SECOND YEAR DENTAL HYGIENE

PREVENTIVE DENTISTRY

1. Allergy some times simulates disease. Discuss two types of allergy that might occur in a dental practice, with suggestions for immediate and follow-up treatment.

2. (a) State the purposes of the Orthodontic patient examination.

(b) Before starting extensive Orthodontic treatment what can the hygienist do to ensure good oral hygiene and to protect the hard and soft tissues during treatment.

3. (a) For each of the following nutrients, state the amount recommended for 8-10 year old Canadian children, and the type and amount of suitable sources to ensure the supply of these nutrients in the recommended amounts:

1) Calcium

2) Ascorbic Acid

3) Thiamine

(b) Under existing Canadian conditions, what general types of foods are likely to be used in inadequate amounts by children.

4. What procedure would you follow to determine any possible relationship between the food intake and the dental status of a patient? What action would you then take? Discuss fully.

5. Define:

(a) Ectopic Eruption

(b) Primate Spaces

(c) Supplementary Tooth

(d) Ectodermal Dysplasia.

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Faculty of Dentistry

Annual Examinations, 1959

SECOND YEAR DENTAL HYGIENE

PSYCHOLOGY I n

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Annual Examinations, 1959

First Y ear & Second Year Dental Hygiene

SOCIOLOGY 1a

Candidates will answer four questions.(If you wish, you may limit your paper to three questions, but if so, you must answer questions 2, 4b and any other.)

1. (a) "You can't study people scientifically -they're all so different" Do you agree? Why or why not? Support your answer with illustrations.

OR

(b) What are the main distinctions between the "pure" and the "applied" sciences? In which does sociology belong? Why? Why are social scientists interested in the s tudy of other societies?

2. "It is significant then that in no society is the individual entirely free to do as he might please" How do you account for this fact? What are the basic means whereby the individual's behaviour is controlled and influenced?

3. "It is woman's inherent nature to seek marriage and man's to avoid it as long as he can" Do you agree? Why or why not? What accounts for such popularity as this belief may have?

4. (a) How do the relationships in Doc's gang (or a similar type of group) resemble and how do they differ from those in any large organization with which you are familiar (e.g. corporation, school, hospital, etc.)? Illustrate where possible.

OR

(b) "In every association, no matter how rigidly structured, an informal organization... arises to coexist with the formal organization." How do these two types of organization differ? What accounts for the development of the informal organization and what are some of the consequences of its existence? illustrate thoroughly.

5. What significant changes have taken place in the family in its transition from the traditional rural to the contemporary urban type? In what major respects has the family remained relatively unchanged?

6. Why do some racial and ethnic groups continue to occupy a relatively low status for fairly lengthy periods? What accounts for their "gains" in status?

7. (a) Taking yourself and your family as examples, show how people's experiences and outlook may be affected significantly by the social "categories" to which they belong.

OR

(b) "The themes of social class and social mobility form a central and unifying link between the studies of Whyte, Hughes and Dollard". Compare and contrast the exploration of this theme in any <u>two</u> of these studies.

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